Windbreaks for Conservation

EXTENSION CIRCULAR 591 **JUNE 1955**

Federal Cooperative Extension Service

Oregon State College • Corvallis

Cooperative Extension work in Agriculture and Home Economics, F. E. Price, director. Oregon State College and the United States Department of Agriculture cooperating. Printed and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914.

Windbreaks for Conservation

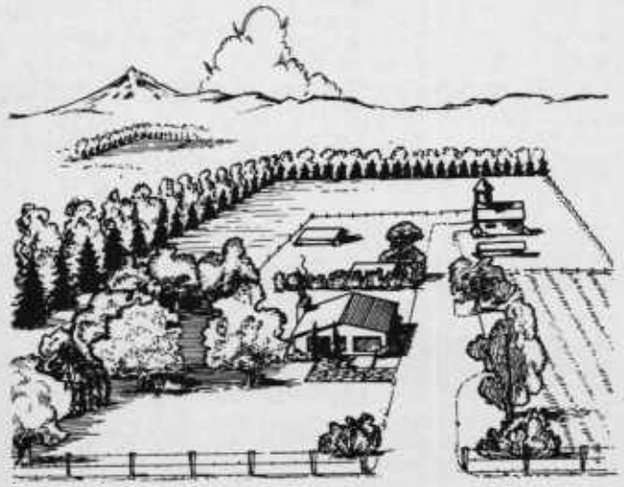
MANY THOUSANDS of trees are planted yearly for windbreaks in Oregon. There are two main types—the Farmstead Windbreak and the Field Windbreak. Both are conservation tools. Since there are more farmstead windbreaks, let's look at them first.

The Farmstead Windbreak

A windbreak can improve the climate over all of the farmstead — the home, garden, orchard, machine sheds, and feed lot. It is a narrow belt of trees on one or more sides of the farmstead. The layout is planned, with the trees and shrubs picked for wind resistance, correctly located to throw a zone of protection over the farmstead.

Whether or not you benefit from a windbreak depends on the local wind conditions. Many localities do not have a serious wind problem because the force of the wind is broken by mountains or native woods.

It will take 5 or 10 years to get your windbreak up to a size that will do much good—but look how much good it will do! It increases farm value; lowers heating costs; saves livestock feed; cuts the dust in the home; makes yard-living more pleasant; catches snow where you want it; and helps the garden and orchard.



Many farmstead, or home, windbreaks are L-shaped. Evergreens are planted on inside row for their protection, as well as for winter color.

These benefits won't come without thoughtful planning of your windbreak—its location, species, spacings, and protection from livestock.

The Field Windbreak

The plan of a field windbreak is simple; it consists of one or more rows of trees along the windward side of a field, with additional rows through the field.

S.C.S. photo

Evergreens give far more protection than broadleaf trees, but in eastern Oregon require more care. This 8-year-old Austrian pine windbreak at the Sherman Branch Experiment Station is off to a good start. Good cultivation keeps pines growing fast under dryland conditions.

A field windbreak helps conserve soil, water, and crops. Like Napoleon's Old Guard, it may be called on as the last defense when other conservation measures appear unable to do the job alone.

Around Boardman, in Morrow County, there are miles of field windbreaks, principally black locust, cottonwood, and Lombardy poplar. Their main purpose is to keep soil from blowing. The soil is so light and sandy that one storm can blow away nearly an inch of soil from an unprotected field. Windbreaks here serve other purposes too. They reduce evaporation of irrigation water—and that in itself helps to prevent soil blowing. Growers consider tree protection most desirable for watermelons, tomatoes, and potatoes.

Jefferson County ranchers have considered field windbreaks to give protection to seed crops where winds cause loss of seed before threshing.

LEFT—Winter view of a mile-long field windbreak in Union County. The trees are tall native willows that thrive here. RIGHT—Field windbreak of black locust in northwest Umatilla County helps control soil blowing, protects crops and stock. Tests show that 19 times as much phosphate and 10 times as much humus are in the material that blows than in the heavier particles that stay on the field.

Picturesque field windbreaks are seen around Gresham, Corbett, and Troutdale in Multnomah County. These are evergreen windbreaks consisting of only one or two rows. Farmers here say field windbreaks help to prevent wind burn on cane fruits and other fruits, and to decrease the loss on fruits from wind damage. The Wenatchee, Washington, tree fruit experiment station reports that windbreaks insure better orchard-spray coverage and that bees prefer to work in windbreak-protected orchards. The Multnomah windbreaks help to prevent winds whipping large acreages of vegetables and increasing harvesting expense by twisting vines. A Gresham farmer kept records and found that a protected field yielded more potatoes than a similar nonprotected field.

Some ranchers in the Grande Ronde Valley of Union County have native willow, black locust, and other trees along the borders of their fields. Protection of livestock is one value. Ranchers and dairymen have learned that windbreaks reduce livestock feed bills and increase calf crops. The Montana Agricultural Experiment Station wintered two herds of cattle on the same rations—one in the protection of trees and shrubs, the other in an open lot with some protection from an open shed. The tree-protected animals gained 34.9 more pounds each during a mild winter than the unprotected herd. Cattle in protected winter feed lots use the feed to put on weight rather than to keep warm.

Planning Tips

Your County Extension Agent has free information circulars and may have suggestions from his own knowledge of your locality. Trees for windbreaks and other "work" tree plantings are available for about 1¢ each postpaid from the State Forestry Department.

Plan field windbreaks only if there is a definite job they can do for you—and don't let them get in the way of efficient farming operations. See that they don't interfere with pipelines, laterals, and necessary movement of machinery.

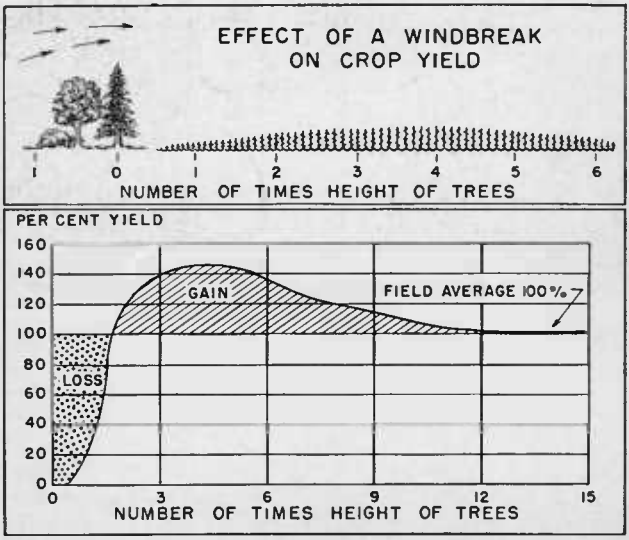
Locate field windbreaks at right angles to the problem winds when possible. Repeat plantings at intervals of 10 to 20 times the height of the trees. Don't mix evergreens and broadleafs in the same row.

What trees should be planted for field windbreaks? This question might well be discussed first with the County Extension Agent who knows the local conditions and the purpose the windbreak is to serve. The field windbreak is planned according to the type of protection needed. For example, truck crops require only single rows of low shrubs. One- or two-row field windbreaks will usually be planned.

For western Oregon, a single row of evergreen trees, such as cedar, Austrian pine, spruce, or Douglas-fir spaced 8 feet apart may be satisfactory.

For eastern Oregon, the combination of a tall tree and an evergreen may be indicated where winter or early spring winds give the most trouble. If broadleaf trees will serve, a single row of the Russian olive might be planted on a 6-foot spacing.

Quick protection over an entire area can be had by planting a single row of fast-growing bushy trees every 200 to 300 feet across a "blow" field. Space the shrubs 3 feet apart in a row. Southernwood does well for this type of planting; Caragana will do better but will develop more slowly. Some ranchers have planted the small shrub windbreaks along their flood dykes. This way they take no ground for the planting, and neither Caragana nor Southernwood competes with field crops. Other ranchers have planted shrub "breaks" as a temporary protection while their regular field windbreaks along the "forty" lines are becoming established.



This chart shows that crop yield is above average over most of the protected zone. Sapping does cause a loss within 1½ tree heights of the windbreak.

Reduce Crop Sapping

If you have large trees of poplar and locust (40 feet high) the zone of field competition is about 5 acres per mile, or 10 acres if there are crops on both sides of the windbreak. Studies indicate that loss of crop yield in the zone of windbreak competition is compensated by better yield in the zone of protection. Nevertheless, sapping should be reduced to the minimum. Idaho Extension workers tell of a practical way to do it: "Where you plant trees next to a field, place a deep, dry furrow between the trees and the field. Keep it about 8 feet from the trees and keep it free of trash. It will be best to keep this furrow dry, then irrigate the trees by use of a small corrugation up near the tree trunks."

COVER PHOTO: An effective 18-year-old field windbreak on the H. W. Strong farm near Gresham. Port Orford cedar and Ponderosa pine reduce wind damage to berry field and make the field more comfortable for work. Oregon State Forestry Department photo.

This leaflet was prepared by Charles R. Ross, Extension Forestry Specialist, Oregon State College, as a part of a conservation series.